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The Enigma of *Penstemon Tenuis* Small
(Scrophulariaceae)*

Aileen L. McWilliam**

Penstemon tenuis Small is a member of the Series Graciles, the eastern group of Penstemons. The stems are several to many, to 1 m tall, herbaceous, arising from a winter rosette, entirely glabrous, often dark pink; leaves horizontally divergent from the stem, not greatly reduced upward, thin, coarsely serrate-dentate, cordate-clasping at base, tapering abruptly to an attenuate tip, 18-40 mm wide, the lower cauline leaves tending to be spatulate; inflorescence sparsely glandular pubescent, of 5-7 fascicles, loose, much-branched; the lower fascicles subtended by pairs of large leafy bracts; sepals smooth, ovate, abruptly contracted to a long attenuate to caudate tip; corolla 15-18 mm long, tube and throat subequal, throat expanded, limb spreading, bilabiate, the lower lip flabelliform; corolla rosy-violet with numerous sharp red-violet lines in the throat, staminode moderately bearded with yellow hairs.

Flowering April-June, this is apparently a species of low, heavy alluvial soils in Arkansas, Louisiana, and eastern Texas.

In the course of a study of the taxonomy, occurrence, and distribution of the Series Graciles in Arkansas and Oklahoma, this species was found to pose some enigmatic questions.

The type specimen was collected in Louisiana, by Hale, and was described by Dr. John Kunkel Small in his *Flora of the Southeastern United States* (1903). It was deposited in the Herbarium of Columbia University, now at the New York Botanic Garden. The species ranges, according to Dr. Francis W. Pennell (1922, 1935), from near the Gulf coast of Louisiana and Texas as far west as Matagordo Bay, and inland, probably throughout the bottomlands of the Mississippi valley. In Arkansas it occurs from Miller County, in the southwest, to Mississippi County, in the northeast, along the river valleys and up to the fall line, though, few collections have been made.

The first enigma involves the disappearance of the species from the literature.

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P. tenuis was included by Pennell in 1922 in his discussion of the Scrophulariaceae of the Eastern Gulf States, with specimens being cited from four Arkansas counties: HEMPSTEAD, Fulton, E. J. Palmer 10514; INDEPENDENCE, Newark, Pennell 10699; MILLER, Mandeville, Eggert; PULASKI, Little Rock, Hasse; two Louisiana parishes: ACADIA, Crowley, Pennell 10186; RAPIDES, Alexandria, Ball 654; and four Texas counties: BRAZORIA, Columbia, Bush 115; FORT BEND, Richmond, Bray 79; HARRIS, Houston, Pennell 10258; LIBERTY, Liberty, E. J. Palmer 7727. It was also included in Pennell's 1935 monograph of the Scrophulariaceae of Eastern Temperate North America, with citations of additional specimens from four Arkansas counties: FAULKNER, Conway, E. J. Palmer 27103; MILLER, Texarkana, Bush 2493; MISSISSIPPI, Osceola, H. E. Wheeler; PULASKI, Little Rock, Palmer 30336; two Louisiana parishes: LAFAYETTE, M. Debaillon; RAPIDES, Alexandria, J. Hale; and three Texas counties; JACKSON, Edna, Drushel 8706; ORANGE, Orange, Small and Wherry 11793; and WHARTON, Wharton, Drushel 8707.

However, *P. tenuis* was not included in Small's 1933 Manual of the Southeastern Flora, and search reveals no further mention of the species in any of the literature except in some 1960 and 1963 mimeographed taxonomic studies by Ralph W. Bennett, President of the American Penstemon Society, which follow Small's and Pennell's works, and in the annual bulletins of the Society. I have not found it treated in any synonymy with other species.

Frank S. Crosswhite, a graduate student at the University of Wisconsin, working on his doctorate in the genus *Penstemon*, has published several papers dealing with the Graciles Series, including a revision of the Series (Crosswhite 1965a, 1965b, 1966). Crosswhite does not mention *P. tenuis*, and apparently did not request the specimens from the University of Arkansas Herbarium, as they do not bear his annotation label as do the specimens of other members of the Series, and they were available to me at a time when he had the other specimens.

Dr. George J. Goodman, Curator of the Bebb Herbarium, University of Oklahoma, suggests that Small did not include *P. tenuis* in his 1933 Manual because he had narrowed the range from that covered in his 1903 Flora, and perhaps considered Arkansas, eastern Texas, and Louisiana as southwestern rather than southeastern. This may also account for the species not having appeared in Gray's Manual (Fernald 1950) nor in Britton and Brown (Gleason 1952) and Cronquist's treatment in Gleason and Cronquist's Manual (1963). It may also be noted that there is a paucity of floral literature for the area with which we are concerned, it being outside the scope of Waterfall's Keys to the Flora of Oklahoma (1966), Goodman's Spring Flora of Central Oklahoma (1958), Shinn's Spring Flora

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of the Dallas-Fort Worth Areat (1958), and Steyermark's Flora of Missouri (1963).

The lack of collecting activity in this area may help to explain the second enigma — why does *P. tenuis* have such scant representation in herbaria; why has it not been reported from suitable habitats throughout the range; and why were no specimens collected and deposited in the University of Arkansas Herbarium over a period of 26 years?

My only other possible answer to both enigmas is that the species may be ephemeral.

I first saw and collected *P. tenuis* in 1964, when it was called to my attention by Freeman Thomas. It was blooming at the edge of two small cypress and water tupelo swamps in Pulaski County, Arkansas, near North Little Rock. I collected it again in 1966 at one of these sites, where it grew to a height of near 1 m in grass and brush at the borderline of the swamp and a field, but it had disappeared in 1965 from the other site, which was pastured up to the water's edge. Also in 1965 I photographed it growing in great abundance along the roadside ditch of U.S. Highway 67 at the south edge of Jacksonville, Pulaski County, Arkansas, in heavy yellow soil with Bermuda grass sod adjacent to a soybean field. Here the plants were in full sun and grew to a height of only about 5 dm, but vigorously and with many stems. In 1966 there was very little *P. tenuis* in this location, and in 1967 there was none, not surprising, considering that the Highway Department had mowed the roadsides regularly.

I transplanted two of these plants in bloom in 1965 into garden loam at my home in Mena, Arkansas (Polk County), where they grew vigorously in 1966 and 1967 to a full 1 m height, with many stems, blooming abundantly. They disappeared in the summer of 1967. I sent seed of the 1966 crop to Fred Fate, at Columbia, Missouri, and to Ralph Bennett, at Arlington, Virginia. These men are members of the American Penstemon Society who have been active for many years in selecting and hybridizing Penstemons for possible horticultural use. Neither had ever seen *P. tenuis*, but both are interested in introducing the color of this species, which is reportedly the most colorful of the Graciles Series. Both Mr. Fate and Mr. Bennett reported excellent germination and the growth of healthy young plants. Apparently the evanescence, if there is such, is not due to lack of viability of the seed.

As to evidence of the specimens examined by me, most of them represent old collections, with wide gaps in distribution both in time and geographical location. From UARK, all Arkansas specimens: LONOKE CO., two collections by J. T. Buchholtz, both from near Austin, in 1921; FAULKNER CO., two collections by Buchholtz,

from Cove Creek and from near Conway, on two successive days in 1924; HEMPSTEAD CO., a collection by E. J. Palmer 24973, from McNab, in 1924; PULASKI CO., a collection by E. J. Palmer 30336, from near Little Rock, in 1926 (cited by Pennell, 1935); LINCOLN CO., a collection by D. M. Moore 31380, from Grady, in 1931; JOHNSON CO., a collection by D. M. Moore, from Pilot Rock, (not bearing Dr. Moore's number, labeled *P. arkansanus*, but obviously *P. tenuis* and so annotated by me), in 1938. The Bebb Herbarium at the University of Oklahoma had only two specimens, from Louisiana, both collected and determined by Charles M. Smith in 1941; OUACHITA PARISH, n. of Monroe, and 15 mi. s. of Monroe.

The next collections, in both UARK and OKL, are mine of 1964 and 1966: PULASKI CO. (Arkansas), McWilliam and Thomas 1999 and McWilliam P6675.

This species is quite distinct from other members of the Graciles Series represented in its range, *P. digitalis*, *P. arkansanus*, *P. pallidus*, and *P. laxiflorus*. Attention should be given by field botanists to its collection and inclusion in possible future floras or other taxonomic publications relating to this area.

LITERATURE CITED

- Bennett, Ralph W., 1960. Penstemon Nomenclature, Bull. Amer. Penstemon Soc. XIX (suppl.): 116, 162.
- _____, 1963. Studies in Penstemon No. 3, Subsections Tubaeiflora, Multiflora, and Penstemon (Graciles), Amer. Penstemon Soc., 1st Ed., 58-61.
- Crosswhite, Frank S., 1965a. Subdivisions of Penstemon Section Penstemon (Scrophulariaceae), SIDA 2, 2: 160-162.
- _____, and Shoichi Kawano, 1965b. Chromosome Numbers in Penstemon (Scrophulariaceae) I: New Mitotic Counts, Rhodora 67, 770: 187-190.
- _____, and Carol D. Crosswhite, 1966. Insect Pollinators of Penstemon Series Graciles (Scrophulariaceae), Amer. Midl. Nat. 76, 2: 450-476.
- Fernald, M. L., 1950. Gray's Manual of Botany, Eighth Ed. Amer. Book Co., New York.
- Gleason, Henry A., 1952. The New Britton and Brown Illus. Flora of the U.S. and Adj. Canada, New York Bot. Garden.
- _____, and Arthur Cronquist, 1963. Manual of the Vascular Plants of Northeastern U.S. and Adj. Canada, Van Nostrand, New York.

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- Goodman, George J., 1958. Spring Flora of Central Oklahoma, Univ. of Oklahoma, Norman.
- Pennell, Francis W., 1922. Scrophulariaceae of the Eastern Gulf States, Proc. Acad. Nat. Sci. Phila. 73.
- _____, 1935. The Scrophulariaceae of Eastern temperate N. America, Acad. of Nat. Sci. of Phila. Monogr. 1.
- Shinners, Lloyd H., 1958. Spring Flora of the Dallas-Fort Worth Area, Publ. by Author.
- Small, John Kunkel, 1903. Flora of the Southeastern United States, 1061, 1337.
- _____, 1933. Manual of the Southeastern Flora, Univ. of N. Carolina Press, Chapel Hill.
- Steyermark, Julian A., 1963. Flora of Missouri, Iowa State Univ. Press, Ames.
- Waterfall, U. T., 1966. Keys to the Flora of Oklahoma, 3rd Ed., Research Foundation, Oklahoma State Univ, Stillwater.